

WHAT IS CLAIMED IS:

1. An isolated polynucleotide comprising a polynucleotide selected from the group consisting of:
 - (a) a nucleic acid sequence having at least 80% sequence identity to SEQ ID NO: 1, wherein the % sequence identity is based on the entire region coding for SEQ ID NO: 2 and is calculated by the GAP algorithm under default parameters, wherein the sequence encodes a polypeptide with 3' to 5' exonuclease activity; and
 - (b) a nucleic acid sequence which is fully complementary to the nucleic acid sequence of (a).
2. A recombinant expression cassette, comprising the polynucleotide of claim 1 operably linked to a promoter.
- 15 3. A non-human host cell comprising the polynucleotide of claim 1.
4. A transgenic plant comprising the polynucleotide of claim 1.
5. The transgenic plant of claim 4, wherein said plant is a monocot.
- 20 6. The transgenic plant of claim 4, wherein said plant is a dicot.
7. The transgenic plant of claim 4, wherein said plant is selected from the group consisting of maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, and millet, peanut, and cocoa.
- 25 8. A transgenic seed from the transgenic plant of claim 4 comprising the polynucleotide.
- 30 9. The isolated polynucleotide of claim 1 having at least 85% sequence identity to SEQ ID NO: 1.

10. The isolated polynucleotide of claim 1 having at least 90% sequence identity to SEQ ID NO: 1.

5 11. An isolated polynucleotide comprising a polynucleotide selected from the group consisting of:

(a) a nucleic acid sequence which encodes a polypeptide having at least 80% sequence identity to SEQ ID NO: 2, wherein the % sequence identity is calculated by the GAP algorithm under default parameters, wherein the polypeptide has 3' to 5' exonuclease activity; and

10 (b) a nucleic acid sequence which is fully complementary to the nucleic acid sequence of (a).

12. A recombinant expression cassette comprising the polynucleotide of claim 11 operably linked to a promoter.

15 13. A non-human host cell comprising the polynucleotide of claim 11.

14. A transgenic plant comprising the polynucleotide of claim 11.

20 15. The transgenic plant of claim 14, wherein said plant is a monocot.

16. The transgenic plant of claim 14, wherein said plant is a dicot.

25 17. The transgenic plant of claim 14, wherein said plant is selected from the group consisting of maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, and millet, peanut, and cocoa.

30 18. A transgenic seed from the transgenic plant of claim 14 comprising the polynucleotide.